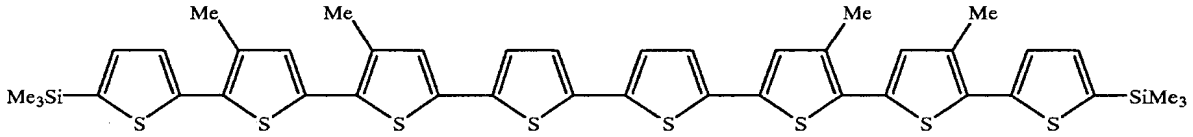
REMARKS

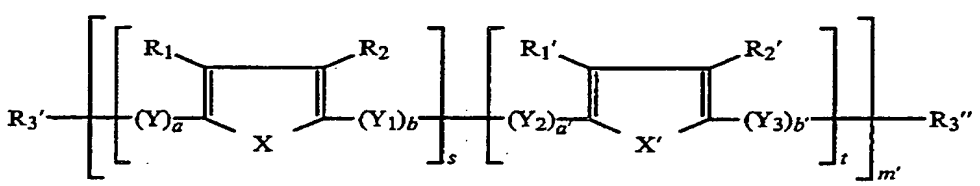
The Office Action of June 1, 2004 has been considered by the Applicants. Claims 1, 3, 4, and 6-26 remain pending in the Application. New claim 29 has been added which corresponds substantially to cancelled claim 2. Reconsideration of the Application is requested.

The Examiner rejected claims 1, 3, 4, 6-19, and 22-26 under 35 U.S.C. 103(a) as being unpatentable over Garnier (US 5,347,144) in view of Reed (US 6,320,200). Applicants traverse the rejection.

Reed discloses polythiophenes for electrical applications and describes a synthesis resulting in:



Garnier discloses a polythiophene of formula III:



According to the Examiner, it would be obvious to one of ordinary skill in the art to use the central thiophene monomers of Reed as the Y1 divalent linkage in the central portion of the Garnier oligomer of formula (III) in order to provide further control of the conductivity and properties of the channel region of the field effect transistor. Applicants submit that the Examiner has not provided motivation to combine the two references. MPEP 2143. Garnier discloses specific divalent linkages for Y1 and states that Y1 may also be a cyclic or heterocyclic arylene group (see col. 5, lines 1-11). Applicants note that thiophene is not an arylene group, which is a ring structure composed exclusively of carbon and hydrogen atoms; a thiophene group by definition includes a sulfur atom in its ring structure. Thus, Garnier teaches away from the use of thiophene monomers as the Y1 divalent linkage.

Applicants have also reviewed Garnier and Reed and are unable to find a reference which teaches or suggests that a thiophene monomer provides further control of the conductivity and properties of the channel region of the field effect transistor. With regard to conductivity, Garnier teaches that the semiconductor should contain at least 8 conjugated bonds and have a molecular weight of no more than 2,000 because high-molecular-weight polymers reduce the conductivity (see col. 2, lines 27-32 and col. 3, lines 7-19, where Garnier refers to conductivity as the mobility of the charge carriers). Though Reed states that thiophenes exhibit conductivity within a certain range, he uses thiophenes primarily because they are stable and can be easily modified (see col. 14, lines 32-43 and col. 20, lines 7-12). Neither reference makes mention of choosing a specific divalent linkage based on its conductivity and properties. Thus, the Examiner has not met his burden of showing that the references suggest or teach that using a thiophene monomer is more desirable for the Y1 divalent linkage of formula (III) than the linkages specified by Garnier. MPEP 2143.01. Applicants request withdrawal of the rejection.

Claims 20 and 21 were rejected under 35 U.S.C. 103(a) as being obvious and unpatentable over Garnier in view of Reed and further in view of Sato (US 5,069,823). Applicants also traverse this rejection.

Claim 20 and 21 are dependent from independent claim 1, and if the independent claim is not obvious, neither are the claims dependent therefrom. MPEP § 2143.03. Applicants incorporate the same argument as given above regarding the lack of motivation to combine Garnier and Reed.

Additionally, Applicants submit that it would not have been obvious to select the Mw of 60,000-100,000 disclosed by Sato to define the Garnier oligomer. Applicants note that Garnier explicitly teaches a molecular weight below 2,000 because a higher weight leads to macromolecules with defects that reduce the mobility of the charge carriers (see col. 3, lines 7-11). Thus, Garnier teaches away from the Mw disclosed by Sato. The proposed modification of increasing the Mw from under 2,000 to 60,000-100,000 would also render the Garnier oligomer unsuitable for its intended purpose. MPEP 2143.01. Applicants request withdrawal of the rejection.

Applicants note that new claim 29 has been added which corresponds substantially to cancelled claim 2. This claim finds support in the specification on page 6, lines 8-14.

CONCLUSION

For the reasons detailed above, it is submitted all claims remaining in the application (Claims 1, 3, 4, 6-26, 29) are now in condition for allowance. The foregoing comments do not require unnecessary additional search or examination. Withdrawal of the rejections and issuance of a Notice of Allowance is requested.

In the event the Examiner considers personal contact advantageous to the disposition of this case, he is hereby authorized to call Richard M. Klein, at telephone number 216-861-5582, Cleveland, OH.

Respectfully submitted,

FAY, SHARPE, FAGAN, MINNICH
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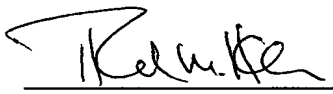

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